



## SEQUENCE LISTING

<110> Adler, David A.  
Holloway, James L.  
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Beigel-Orme, Stephanie  
Sheppard, Paul O.

<120> NOVEL BETA-DEFENSINS

<130> 97-44D1

<140> US 10/091,166  
<141> 2002-03-05

<150> US 09/636,399  
<151> 2000-08-10

<150> US 09/344,097  
<151> 1999-06-25

<150> US 09/150,786  
<151> 1998-09-10

<150> US 60/064,294  
<151> 1997-11-05

<150> US 60/058,335  
<151> 1997-09-10

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<170> FastSEQ for Windows Version 4.0

<210> 1  
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<212> DNA  
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<220>  
<221> CDS  
<222> (1)...(195)

<400> 1  
atg agg atc cat tat ctt ctg ttt gct ttg ctc ttc ctg ttt ttg gtg 48  
Met Arg Ile His Tyr Leu Leu Phe Ala Leu Leu Phe Leu Phe Leu Val  
1 5 10 15

cct gtt cca ggt cat gga gga atc ata aac aca tta cag aaa tat tat 96  
Pro Val Pro Gly His Gly Gly Ile Ile Asn Thr Leu Gln Lys Tyr Tyr  
20 25 30

tgc aga gtc aga ggc ggc cgg tgt gct gtg ctc agc tgc ctt cca aag 144  
Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys  
35 40 45

gag gaa cag atc ggc aag tgc tcg acg cgt ggc cga aaa tgc tgc cga 192  
Glu Glu Gln Ile Gly Lys Cys Ser Thr Arg Gly Arg Lys Cys Cys Arg  
50 55 60

aga aagaaataaa aaccctgaaa catg 219  
Arg 65

<210> 2  
<211> 65

<212> PRT  
<213> Homo sapiens

<400> 2  
Met Arg Ile His Tyr Leu Leu Phe Ala Leu Leu Phe Leu Phe Leu Val  
1 5 10 15  
Pro Val Pro Gly His Gly Gly Ile Ile Asn Thr Leu Gln Lys Tyr Tyr  
20 25 30  
Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys  
35 40 45  
Glu Glu Gln Ile Gly Lys Cys Ser Thr Arg Gly Arg Lys Cys Cys Arg  
50 55 60  
Arg  
65

<210> 3  
<211> 31  
<212> PRT  
<213> Artificial Sequence

<220>  
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<222> (2)...(7)  
<223> Any amino acid, preferably not cysteine.

<221> VARIANT  
<222> (9)...(12)  
<223> Any amino acid, preferably not cysteine.

<221> VARIANT  
<222> (14)...(20)  
<223> Any amino acid, preferably not cysteine.

<221> VARIANT  
<222> (22)...(22)  
<223> Any amino acid, preferably not cysteine.

<221> VARIANT  
<222> (24)...(29)  
<223> Any amino acid, preferably not cysteine.

<223> conserved motif

<400> 3  
Cys Xaa Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa  
1 5 10 15  
Xaa Xaa Xaa Xaa Gly Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Cys  
20 25 30

<210> 4  
<211> 213  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Degenerate nucleotide encoding the polypeptide of  
SEQ ID NO:2.

<221> misc\_feature  
<222> (1)...(213)  
<223> n = a, g, c or t

<400> 4  
athcaytayy tnytnntygc nytnyntty ytntyytng tnccngtncc nggncaaygg 60  
ggnathatha ayacnytnca raartrrrnnn tgymngngtnm gnggnggnmg ntgygcngtn 120  
ytnwsntgyy tnccnaarga rgarcarath ggnartgyw snacnmnggg nmgnartgy 180  
tgymgnmgnra araartrraa rccntrraay atg 213

<210> 5  
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<220>  
 <223> Oligonucleotide zC14741

<400> 5  
 gagcacttgc cgatctgttc 20

<210> 6  
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 <212> DNA  
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<220>  
 <223> Oligonucleotide zC14740

<400> 6  
 ccaggtcatg gaggaatcat 20

<210> 7  
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<220>  
 <223> Oligonucleotide zC14780

<400> 7  
 ggaggaatca taaacaca 18

<210> 8  
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 <212> DNA  
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<220>  
 <223> Oligonucleotide zC14776

<400> 8  
 gccgatctgt tcctccctt 18

<210> 9  
 <211> 438  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (220)...(420)

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 acaaatatccat agggagctct gccttaccat tgggttccta attaactgag tgagtgggtg 60  
 tttctgtcat ggtgaggaggc atttggatga tgcatacgaa aacatgtcat aatgtcatca 120  
 ctgttatatg acaagaattg cagctgtggc tggAACCTT attaaagtgac caagcacacc 180  
 ttttcatcca gtctcagcgt ggggtgaagc ctagcagct atg agg atc cat tat 234  
 Met Arg Ile His Tyr  
 1 5

ctt ctg ttt gct ttg ctc ttc ctg ttt ttg gtg cct gtt cca ggt cat 282  
 Leu Leu Phe Ala Leu Leu Phe Leu Phe Leu Val Pro Val Pro Gly His  
 10 15 20

gga gga atc ata aac aca tta cag aaa tat tat tgc aga gtc aga ggc 330  
 Gly Gly Ile Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Gly  
 25 30 35

ggc cggtgt gct gtg ctc agc tgc ctt cca aag gag gaa cag atc ggc 378  
 Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Gly  
 40 45 50

aag tgc tcg acg cgt ggc cga aaa tgc tgc cga aga aag aaa 420  
 Lys Cys Ser Thr Arg Gly Arg Lys Cys Cys Arg Arg Lys Lys  
 55 60 65

taaaaaaccctt gaaacatg 438

<210> 10  
<211> 67  
<212> PRT  
<213> Homo sapiens

<400> 10  
 Met Arg Ile His Tyr Leu Leu Phe Ala Leu Leu Phe Leu Phe Leu Val  
 1 5 10 15  
 Pro Val Pro Gly His Gly Ile Ile Asn Thr Leu Gln Lys Tyr Tyr  
 20 25 30  
 Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys  
 35 40 45  
 Glu Glu Gln Ile Gly Lys Cys Ser Thr Arg Gly Arg Lys Cys Cys Arg  
 50 55 60  
 Arg Lys Lys  
 65

<210> 11  
<211> 219  
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<213> Artificial Sequence

<220>  
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<221> misc\_feature  
<222> (1)...(219)  
<223> n = a, g, c or t

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 cayggnggna thathaayac nytncaaraar trrrnnntgym gngtnmgngg nggnmgntgy 120  
 gcngrnytnw sntgyytncc naargargar carathggna artgywsnac nmngngnmgn 180  
 aartgytgym gnmgnaaraa rtrraarccn trraayatg 219

<210> 12  
<211> 21  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide ZC15591

<400> 12  
 tgccgatctg ttccctccttt g 21

<210> 13  
<211> 25  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide ZC15589

<400> 13  
 gaacaggcac caaaaacagg aagag 25

<210> 14  
<211> 37  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<400> 14  
Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu Ser  
1 5 10 15  
Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr Arg  
20 25 30  
Lys Cys Cys Arg Arg  
35

<210> 15  
<211> 29  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (26)...(26)  
<223> Leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 15  
Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly  
1 5 10 15  
Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
20 25

<210> 16  
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<212> PRT  
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<220>  
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<221> VARIANT  
<222> (26)...(26)  
<223> Leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 16  
Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly  
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Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
20 25 30

<210> 17  
<211> 27  
<212> PRT  
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<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (26)...(26)  
<223> Leucine, isoleucine, valine, phenylalanine, or

## methionine

<400> 17  
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 1 5 10 15  
 Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg  
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<210> 18  
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<220>  
 <223> Defensin polypeptide

<400> 18  
 Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu Ser  
 1 5 10 15  
 Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr Arg  
 20 25 30  
 Lys Cys Cys Arg Arg Lys  
 35

<210> 19  
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 <212> PRT  
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<220>  
 <223> Defensin polypeptide

<400> 19  
 Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu Ser  
 1 5 10 15  
 Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr Arg  
 20 25 30  
 Lys Cys Cys Arg Arg Lys Lys  
 35

<210> 20  
 <211> 44  
 <212> PRT  
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<220>  
 <223> Defensin polypeptide

<400> 20  
 Ile Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg  
 1 5 10 15  
 Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys  
 20 25 30  
 Ser Thr Arg Tyr Arg Lys Cys Cys Arg Arg Lys Lys  
 35 40

<210> 21  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<400> 21

Ile Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg  
1 5 10 15  
Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys  
20 25 30  
Ser Thr Arg Tyr Arg Lys Cys Cys Arg Arg Lys  
35 40

<210> 22

<211> 42

<212> PRT

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<220>

<223> Defensin polypeptide

<400> 22

Ile Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg  
1 5 10 15  
Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys  
20 25 30  
Ser Thr Arg Tyr Arg Lys Cys Cys Arg Arg  
35 40

<210> 23

<211> 43

<212> PRT

<213> Artificial Sequence

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<223> Defensin polypeptide

<400> 23

Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys  
1 5 10 15  
Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser  
20 25 30  
Thr Arg Tyr Arg Lys Cys Cys Arg Arg Lys Lys  
35 40

<210> 24

<211> 42

<212> PRT

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<223> Defensin polypeptide

<400> 24

Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys  
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Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser  
20 25 30  
Thr Arg Tyr Arg Lys Cys Cys Arg Arg Lys  
35 40

<210> 25

<211> 41

<212> PRT

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<220>

<223> Defensin polypeptide

<400> 25

Ile Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys

8  
1 . 5 10 15  
Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser  
20 25 30  
Thr Arg Tyr Arg Lys Cys Cys Arg Arg  
35 40

<210> 26  
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<212> PRT  
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<220>  
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1 5 10 15  
Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr  
20 25 30  
Arg Tyr Arg Lys Cys Cys Arg Arg Lys Lys  
35 40

<210> 27  
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<220>  
<223> Defensin polypeptide

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Asn Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala  
1 5 10 15  
Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr  
20 25 30  
Arg Tyr Arg Lys Cys Cys Arg Arg Lys  
35 40

<210> 28  
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<220>  
<223> Defensin polypeptide

<400> 28  
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1 5 10 15  
Val Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr  
20 25 30  
Arg Tyr Arg Lys Cys Cys Arg Arg  
35 40

<210> 29  
<211> 41  
<212> PRT  
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<220>  
<223> Defensin polypeptide

<400> 29  
Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val  
1 5 10 15

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Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg  
20 25 30  
Tyr Arg Lys Cys Cys Arg Arg Lys Lys  
35 40

<210> 30  
<211> 40  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<400> 30  
Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val  
1 5 10 15  
Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg  
20 25 30  
Tyr Arg Lys Cys Cys Arg Arg Lys  
35 40

<210> 31  
<211> 39  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<400> 31  
Thr Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val  
1 5 10 15  
Leu Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg  
20 25 30  
Tyr Arg Lys Cys Cys Arg Arg  
35

<210> 32  
<211> 40  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<400> 32  
Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu  
1 5 10 15  
Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr  
20 25 30  
Arg Lys Cys Cys Arg Arg Lys Lys  
35 40

<210> 33  
<211> 39  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<400> 33  
Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu  
1 5 10 15  
Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr

10  
20                   25                   30  
Arg Lys Cys Cys Arg Arg Lys  
35

<210> 34  
<211> 38  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<400> 34  
Leu Gln Lys Tyr Tyr Cys Arg Val Arg Tyr Tyr Arg Cys Ala Val Leu  
1                 5                 10                 15  
Ser Cys Leu Pro Lys Glu Glu Gln Ile Tyr Lys Cys Ser Thr Arg Tyr  
20                 25                 30  
Arg Lys Cys Cys Arg Arg  
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<210> 35  
<211> 49  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (45)...(45)  
<223> leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 35  
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1                 5                 10                 15  
Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu  
20                 25                 30  
Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
35                 40                 45  
Lys

<210> 36  
<211> 48  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (45)...(45)  
<223> leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 36  
Pro Gly His Gly Gly Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg  
1                 5                 10                 15  
Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu  
20                 25                 30  
Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
35                 40                 45

<210> 37

&lt;211&gt; 48

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (44)...(44)

<223> Leucine, isoleucine, valine, phenylalanine, or  
methionine

&lt;400&gt; 37

Gly	His	Gly	Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val
1				5				10					15		
Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys
			20			25		25			30				
Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys
		35			40						45				

&lt;210&gt; 38

&lt;211&gt; 47

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (44)...(44)

<223> Leucine, isoleucine, valine, phenylalanine, or  
methionine

&lt;400&gt; 38

Gly	His	Gly	Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val
1				5				10					15		
Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys
			20			25		25			30				
Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	
		35			40						45				

&lt;210&gt; 39

&lt;211&gt; 47

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Defensin polypeptide

&lt;221&gt; VARIANT

&lt;222&gt; (43)...(43)

<223> Leucine, isoleucine, valine, phenylalanine, or  
methionine

&lt;400&gt; 39

His	Gly	Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg
1				5				10					15		
Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile
			20			25		25			30				
Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys	
		35			40						45				

&lt;210&gt; 40

&lt;211&gt; 46

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT

<222> (43)...(43)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 40

His	Gly	Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg
1														15	
Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile
														30	
Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys		
														45	

<210> 41

<211> 46

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (42)...(42)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 41

Gly	Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly
1														15	
Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly
														30	
Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys		
														45	

<210> 42

<211> 45

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (42)...(42)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 42

Gly	Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly
1														15	
Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly
														30	
Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys			
														45	

<210> 43

<211> 45

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (41)...(41)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 43

Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly
1					5			10					15		
Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys
				20				25				30			
Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys			
					35			40				45			

<210> 44

<211> 44

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (41)...(41)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 44

Gly	Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly
1					5			10				15			
Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys
				20				25				30			
Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys				
					35			40							

<210> 45

<211> 44

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (40)...(40)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 45

Ile	Ile	Asn	Thr	Leu	Gln	Leu	Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly
1					5			10				15		
Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys
				20				25			30			
Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys	Lys			
					35			40						

<210> 46

<211> 43

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (40)...(40)

14

<223> leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 46

Ile Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg  
1 5 10 15

Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met  
20 25 30

Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
35 40

<210> 47

<211> 43

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (39)...(39)

<223> leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 47

Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys  
1 5 10 15

Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser  
20 25 30

Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
35 40

<210> 48

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (39)...(39)

<223> leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 48

Ile Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys  
1 5 10 15

Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser  
20 25 30

Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
35 40

<210> 49

<211> 42

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (38)...(38)

<223> leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 49  
 Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala  
 1 5 10 15  
 Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr  
 20 25 30  
 Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
 35 40

<210> 50

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (38)...(38)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 50

Asn Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala  
 1 5 10 15  
 Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr  
 20 25 30  
 Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
 35 40

<210> 51

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (37)...(37)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 51

Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val  
 1 5 10 15  
 Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg  
 20 25 30  
 Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
 35 40

<210> 52

<211> 40

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (37)...(37)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 52

Thr Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val  
 1 5 10 15

Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg  
20 25 30  
Gly Arg Lys Cys Xaa Arg Arg Lys  
35 40

<210> 53  
<211> 40  
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<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (36)...(36)  
<223> Leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 53  
Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu  
1 5 10 15  
Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly  
20 25 30  
Arg Lys Cys Xaa Arg Arg Lys Lys  
35 40

<210> 54  
<211> 39  
<212> PRT  
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<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (36)...(36)  
<223> Leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 54  
Leu Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu  
1 5 10 15  
Ser Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly  
20 25 30  
Arg Lys Cys Xaa Arg Arg Lys  
35

<210> 55  
<211> 39  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (35)...(35)  
<223> Leucine, isoleucine, valine, phenylalanine, or  
methionine

<400> 55  
Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser  
1 5 10 15  
Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg  
20 25 30  
Lys Cys Xaa Arg Arg Lys Lys

<210> 56  
<211> 38  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (35)...(35)  
<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 56  
Gln Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser  
1 5 10 15  
Cys Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg  
20 25 30  
Lys Cys Xaa Arg Arg Lys  
35

<210> 57  
<211> 38  
<212> PRT  
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<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (34)...(34)  
<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 57  
Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys  
1 5 10 15  
Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys  
20 25 30  
Cys Xaa Arg Arg Lys Lys  
35

<210> 58  
<211> 37  
<212> PRT  
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<220>  
<223> Defensin polypeptide

<221> VARIANT  
<222> (34)...(34)  
<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 58  
Leu Tyr Tyr Cys Arg Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys  
1 5 10 15  
Leu Pro Lys Glu Glu Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys  
20 25 30  
Cys Xaa Arg Arg Lys  
35

<210> 59

<211> 37

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (33)...(33)

<223> Leucine, isoleucine, valine, phenylalanine, or methionine

<400> 59

Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu
1				5				10				15			
Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys
				20				25				30			
Xaa	Arg	Arg	Arg	Lys											
				35											

<210> 60

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (33)...(33)

<223> Leucine, isoleucine, valine, phenylalanine, or methionine

<400> 60

Tyr	Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu
1				5				10				15			
Pro	Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys
				20				25				30			
Xaa	Arg	Arg	Arg	Lys											
				35											

<210> 61

<211> 36

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (32)...(32)

<223> Leucine, isoleucine, valine, phenylalanine, or methionine

<400> 61

Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro
1				5				10				15			
Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa
				20				25				30			
Arg	Arg	Arg	Lys												
				35											

<210> 62

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (32)...(32)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 62

Tyr	Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro
1				5					10				15		
Lys	Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa
				20				25				30			
Arg	Arg	Lys													
		35													

<210> 63

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (31)...(31)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 63

Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys
1				5					10			15			
Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg
				20				25				30			
Arg	Lys	Lys													
		35													

<210> 64

<211> 34

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (31)...(31)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 64

Cys	Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys
1				5					10			15			
Glu	Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg
				20				25				30			
Arg	Lys														

<210> 65

<211> 34

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (30)...(30)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 65

Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu
1			5					10					15		
Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg
			20				25					30			
Lys															Lys

<210> 66

<211> 33

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (30)...(30)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 66

Arg	Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu
1			5					10					15		
Glu	Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg
			20				25					30			
Lys															

<210> 67

<211> 33

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (29)...(29)

<223> leucine, isoleucine, valine, phenylalanine, or methionine

<400> 67

Val	Arg	Gly	Gly	Arg	Cys	Ala	Val	Leu	Ser	Cys	Leu	Pro	Lys	Glu	Glu
1			5					10					15		
Cys	Ile	Gly	Lys	Met	Ser	Thr	Arg	Gly	Arg	Lys	Cys	Xaa	Arg	Arg	Lys
			20				25					30			
Lys															

<210> 68

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Defensin polypeptide

<221> VARIANT

<222> (29)...(29)  
 <223> leucine, isoleucine, valine, phenylalanine, or  
 methionine

<400> 68  
 Val Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu  
 1 5 10 15  
 Cys Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
 20 25 30

<210> 69  
 <211> 32  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (28)...(28)  
 <223> leucine, isoleucine, valine, phenylalanine, or  
 methionine

<400> 69  
 Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys  
 1 5 10 15  
 Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
 20 25 30

<210> 70  
 <211> 31  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (28)...(28)  
 <223> leucine, isoleucine, valine, phenylalanine, or  
 methionine

<400> 70  
 Arg Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys  
 1 5 10 15  
 Ile Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
 20 25 30

<210> 71  
 <211> 31  
 <212> PRT  
 <213> Artificial sequence

<220>  
 <223> Defensin polypeptide

<221> VARIANT  
 <222> (27)...(27)  
 <223> leucine, isoleucine, valine, phenylalanine, or  
 methionine

<400> 71  
 Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile  
 1 5 10 15  
 Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys Lys  
 20 25 30

<210> 72  
<211> 30  
<212> PRT  
<213> Artificial sequence  
  
<220>  
<223> defensin polypeptide  
  
<221> VARIANT  
<222> (27)...(27)  
<223> leucine, isoleucine, valine, phenylalanine, or  
methionine  
  
<400> 72  
Gly Gly Arg Cys Ala Val Leu Ser Cys Leu Pro Lys Glu Glu Cys Ile  
1 5 10 15  
Gly Lys Met Ser Thr Arg Gly Arg Lys Cys Xaa Arg Arg Lys  
20 25 30